Montana Department of Public Health and Human Services
Emergency Medical Services and Injury Prevention Section
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# Injury Prevention and Control Plan

September 1, 1998

## Executive Summary

***Injuries are not accidents***; but are preventable through changes in the environment, regulations, education, and use of existing technologies.[1] In Montana, injury is the leading cause of death from ages 1 - 44 years. Montana's injury death rate for 1996 was 71/100,000 vs. 58/100,000 nationally. Injuries occur disproportionately among the young, elderly, and Native Americans (150/100,000). Available data show leading causes of injury fatality in Montana are: motor vehicle crashes, suicide, falls, firearms, poisoning, and drowning.

Injury is a disease of the young. As such, injury deaths account for more years of productive life lost in Montana than all other causes of disease combined. Economic consequences of injury are staggering. The cost of unintentional injury, excluding violence, was $440 billion to the U.S. economy in 1994.[2] In Montana in 1996, there were 198 traffic fatalities resulting in estimated costs of $476 million.[3]

***The primary goals of this plan are to reduce the rate of unintentional injury in Montana by 5% by January, 2001 and to move towards the Healthy People 2000 objectives.***

The plan includes an overview of the magnitude of the problem, a discussion of injury prevention philosophies, an emphasis on the need for better data over time, and strategies for implementation. Specific problem areas that will be addressed include infrastructure, motor vehicle injuries, fall injuries, intentional injuries and water injuries.

- *A sustainable infrastructure will be maintained within the Emergency Medical Services and Injury Prevention Section (EMSIPS) of the Department of Public Health and Human Services that coordinates and support the needs of regional and local injury prevention efforts.*

- *Support and assist in efforts to reduce motor vehicle crashes and/or the injury producing effects of those crashes.*

- *To implement, monitor and evaluate a fall reduction campaign in homes and other residential facilities serving older populations.*

- *Develop, implement and evaluate prevention strategies and programs to reduce the incidence and rates of suicide, particularly among adolescents and teens, and support programs designed to maintain the low incidence of homicide in Montana.*

- *Decrease drowning rates to less than 2/100,000 by the year 2000. Meet the Healthy People 2000 objective of 1.3/100,000 by 2010.*

By implementing the scientifically-based, strategically planned program outlined in this document, injury fatality, disability, and costs will be reduced — making Montana a healthier place to live, work, and play.

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# INTRODUCTION

This Injury Prevention Plan presents the magnitude of the problem and the underlying philosophy followed by recommendations for long-term program implementation. The plan is consistent with Healthy People 2000, and Montana Department of Health and Human Services (DPHHS) benchmarks relevant to injury prevention, as well as the Emergency Medical Services for Children (EMSC) five year benchmark objectives. The Montana Injury Prevention and Control Program will coordinate and facilitate statewide injury prevention activities. Emphasis will be placed on strengthening the program infrastructure and enhancing specific prevention activities in the target areas of: motor vehicle, falls, intentional and water related injuries.

## GENERAL PHILOSOPHY OF IMPLEMENTATION

The program will be integrated into the developing State Trauma Care System as a prevention component. It will be overseen by the Injury Prevention Coordinator under the direction of the Injury Prevention Subcommittee of the State Trauma Care Committee. The injury prevention program will facilitate development of local injury prevention efforts through the Regional Trauma Advisory Committees (RTAC). The injury prevention program, by providing materials, support and technical assistance, can facilitate regional and local injury prevention and control programs, developing a visible public awareness of injury and leading to *A Culture of Safety.*

## USE OF THIS PLAN

This plan serves only as a starting point. It must be revisited regularly as additional information becomes available from existing and future data sources. The injury prevention program in Montana will be data-driven and firmly based in scientific method. This will allow limited resources to be focused to ensure the greatest results. This document is intended to guide subsequent activities, help reduce inappropriate duplications of effort, eliminate ineffective programs or strategies, and make Montana a safer and healthier place to live, work and play.

## NEXT STEPS

This plan will be distributed to stakeholders involved in injury prevention and control efforts including members of the State Trauma Care Committee, the Injury Prevention Sub-Committee, Regional Trauma Advisory Committees, relevant city, county and state agencies as well as private organizations.

Ongoing revision of the plan, based on a quality improvement (QI) model, and increasingly comprehensive injury data will occur every two years. Subsequent revisions will include available fiscal data.

Refinement of the implementation plan will evolve to include goals, objectives, activity time lines, and target completion dates. Intervention strategies and evaluation plans will be based on the best scientific practices. To ensure the ongoing viability of the injury prevention and control program, activities must be tempered by fiscal and political realities.

# THE INJURY PROBLEM IN MONTANA

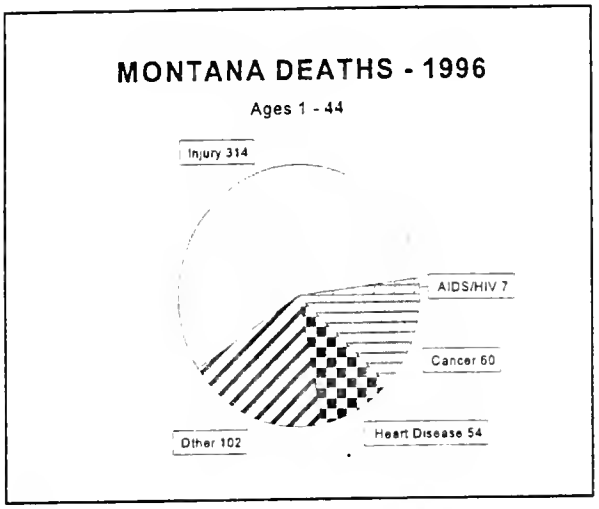


**Figure 1** Source: DPHHS Vital Statistics 1996

The Montana rate of death from injury is (71/100,000) 23% higher than the national average at 58/100,000.[4]

In Montana, injury is the leading cause of death for those between the ages of 1 and 44 and is the third leading cause of death overall[5] (Figure 1).

*During a year in Montana, injury fatalities equal those of <u>two</u> jumbo jet crashes with no survivors! Such catastrophic events would merit immediate public action and attention. However, since injury deaths occur in isolation or in small clusters they often go unnoticed except by the family members and friends who are impacted directly.*

During the past decade, more than 6,000 people have been needlessly killed due to injuries.[6]

Since injury most commonly affects the younger age groups, it results in more years of potential life lost than any other cause of death[1] (Figure 2).

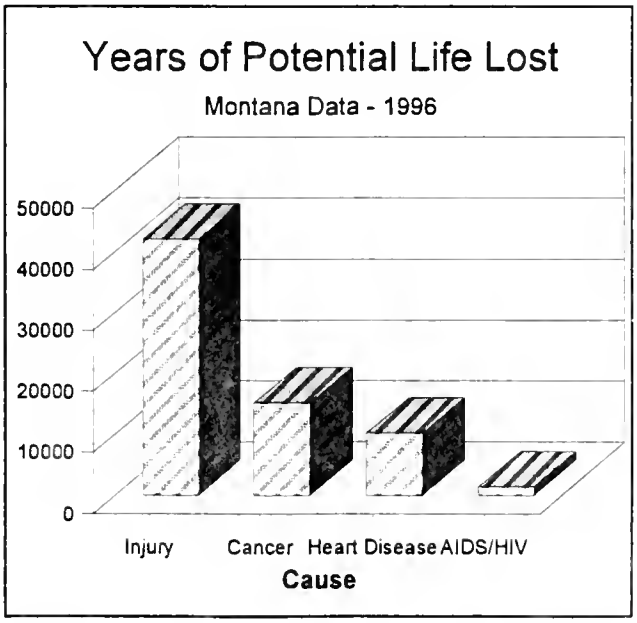


**Figure 2** Source: Centers for Disease Control, 1996

Mortality is only a gross indicator of the magnitude of the problem.[7,8] According to Williams et al. (1995), mortality data account for only 0.2% of the injured patients. Unfortunately, Montana, not unlike many other states, has limited sets of information available that help to define the extent of the injury epidemic. The Montana System Trauma Register (STR), which was begun in 1991 and now includes participation of 34 hospitals statewide, is beginning to produce information on the most serious non-fatal and fatal injuries. Table 1, below, is a representative sample of those data, summarizing the disposition of seriously injured patients.

**Emergency Department Disposition of Trauma Patient 1991-1996**
Representative Sample (N=7639)

| Category | Total | Percent |
|---|---|---|
| Not treated | 307 | 04% |
| Discharged home | 120 | 02% |
| Left against medical advice | 4 | 00% |
| Admitted to this hospital | 6,697 | 88% |
| Transferred to another hospital | 337 | 05% |
| Expired (Including DOA) | 174 | 03% |

**Table 1** Source: DPHHS System Trauma Register

National data estimated the cost of unintentional injury at $440 billion for 1994.[2] Due to limitations in data, present cost estimates for injury in Montana can only be extrapolated from national sources. Efforts are currently underway to link a variety of disparate sources of data to provide a true representation of injury cost to Montana's economy. However, in data captured by the STR for Montana's most seriously injured patients, it is known that the average length of hospital stay was 7.4 days and that the average length of Intensive Care Unit (ICU) stay was 4.4 days. These figures represent substantial health care costs.

According to a variety of sources, for each fatal injury there are 17 traumatic events that require hospitalization and 250 that require some level of medical care. The injury pyramid represents this distribution[4] (Figure 3).

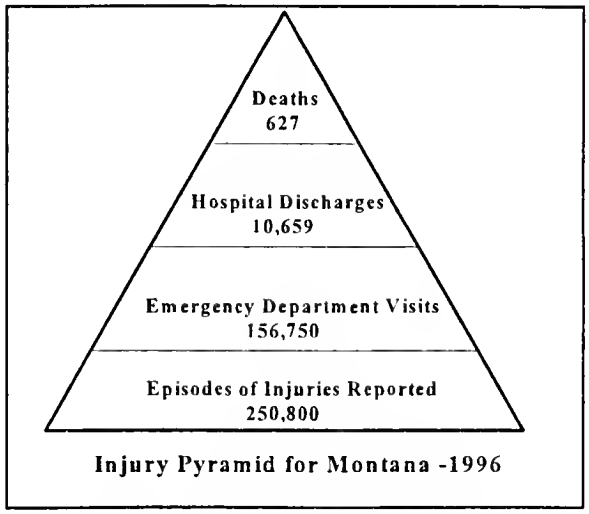


**Figure 3** Extrapolated from MT Vital Statistics, 1996

Other sources of data, such as the Centers for Disease Control and Prevention's on-line database known as CDC Wonder[9] can be accessed to produce specific reports by county, race, gender and other variables. Table 2 below depicts a historical injury fatality distribution by county in Montana.

| Age Adjusted Fatality Rates by County — 1990-1994 | | | | | |
|---|---|---|---|---|---|
| County | Rate Per 100,000 | County | Rate Per 100,000 | County | Rate Per 100,000 |
| Beaverhead | 75.9 | Lewis/Clark | 59.8 | Sheridan | 46.7 |
| Big Horn | 147.5 | Lincoln | 82.8 | Silver Bow | 91.5 |
| Blaine | 100.1 | Madison | 62.7 | Stillwater | 76.4 |
| Broadwater | 82.7 | Meagher | 123.8 | Sweet Grass | 27.0 |
| Carbon | 84.0 | Mineral | 141.4 | Teton | 121.7 |
| Cascade | 65.3 | Missoula | 59.3 | Toole | 69.9 |
| Choteau | 91.7 | Musselshell | 139.2 | Valley | 88.9 |
| Custer | 65.6 | Park | 77.9 | Wheatland | 64.3 |
| Dawson | 39.4 | Phillips | 63.8 | Yellowstone | 67.2 |
| Deer Lodge | 73.8 | Pondera | 66.0 | Carter | 32.4 |
| Fallon | 76.3 | Powder River | 73.2 | Daniels | 74.4 |
| Fergus | 91.7 | Powell | 92.9 | Golden Valley | 103.8 |
| Flathead | 66.3 | Prairie | 135.4 | Judith Basin | 77.7 |
| Gallatin | 56.4 | Ravalli | 73.9 | Liberty | 61.8 |
| Glacier | 118.3 | Richland | 82.5 | McCone | 86.0 |
| Granite | 89.0 | Roosevelt | 147.3 | Petroleum | 00.0 |
| Hill | 66.5 | Rosebud | 132.1 | Treasure | 50.1 |
| Jefferson | 95.5 | Sanders | 104.2 | Wibaux | 80.5 |
| Lake | 101.6 | Sheridan | 46.7 | | |

**Table 2** Source: CDC Wonder

Note that shaded counties data are estimated only. Actual numbers of fatalities for the period are less than ten and therefore age adjusted rates can only be estimated.

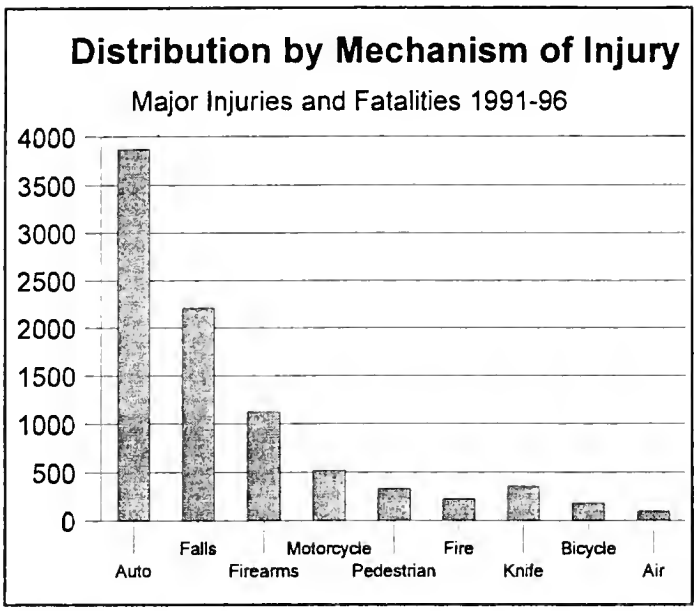


**Figure 4** Source: DPHHS System Trauma Register

Of the most seriously injured patients captured by the Montana System Trauma Register, the most significant mechanism of injury is confirmed as motor vehicle, followed by falls and firearms. The following data indicate the distribution of injury by mechanisms from 1991 through 1996 (Figure 4).

Other useful data are being produced by the System Trauma Register in a number of areas including injury severity and outcome comparisons against expected results.

*Trauma is a disease of the young. As such it represents a tremendous drain on the future of Montana in terms of social and economic impact — not to mention family grief and suffering.*

Montana's age distribution is not unlike that found across the rest of the nation. The greatest risk occurs between the ages of 15 and 25. However, it should be clear from the age distribution displayed in figure 5 that other age groups are not immune from the consequences of this deadly plague.

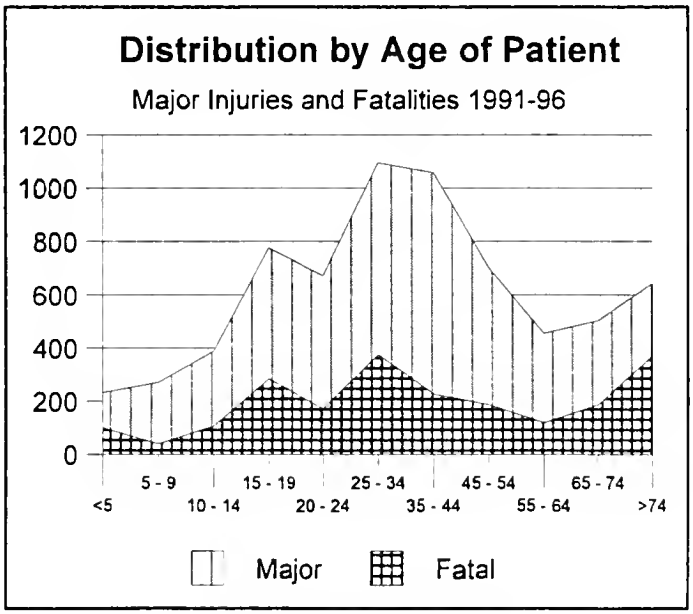


**Figure 5** Source: DPHHS System Trauma Register

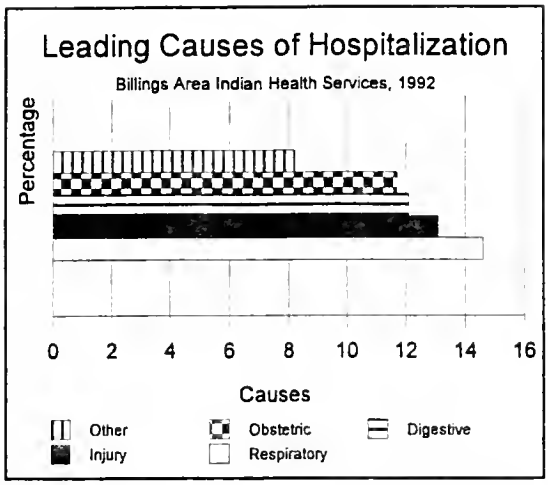


**Figure 6** Source: Billings IHS, 1994

One of the most complete set of injury information concerns Montana's most significant minority population — Native Americans. The Billings Area Indian Health Service (IHS) oversees the provision of health care services for each of the seven Indian reservations in Montana. The information gathered by IHS provides a fairly complete picture of the causes of hospitalization of Native Americans[10] (Figure 6). What is not evident from these data is the alarming fact that Montana's Native Americans die from injury death at a rate (150/100,000) nearly twice that of the Caucasian majority.[11]

The Critical Illness and Trauma Foundation, Inc. (CIT) of Bozeman has been active in conducting and reporting injury-related research. A retrospective comparative examination found increases in certain types of injury death among Montana's younger population (≤ 14) over the course of the past decade. Increases of particular note, include: motor vehicle death (44%), unintentional gunshot wounds (383%) and, suicide (400%) [all reported findings significant at < 0.05].[12] This investigation suggests that, to date, we have been unsuccessful in our efforts to reduce childhood injury deaths in Montana, further underscoring the need for a coordinated approach to injury prevention activities (Table 3).

| Death Rates Per 100,000 by Mechanism of Injury ≤ 14 Years of Age | | |
|---|---|---|
| **Mechanism of Injury** | **1980-1985** | **1989-1992** |
| All Injury | 21.6 | 21.5 |
| Drowning | 3.6 | 2.7 |
| Motor Vehicle | 3.6 | 5.2 |
| Pedestrian Traffic | 2.8 | 0.7 |
| Homicide | 1.8 | 1.8 |
| House Fire | 2.4 | 2.1 |
| Firearm Unintentional | 0.6 | 2.3 |
| Suicide | 0.8 | 3.2 |
| All Other Causes | 5.9 | 3.8 |

**Table 3** Shaded area significant at .05

## DATA CHALLENGES

Montana's approach to injury prevention should be solidly based in sound scientific processes and methods. A fundamental requirement of any scientific inquiry or investigation is a source of reliable and consistently available data.

During the development of this plan it has become clear that the full burden and impact of injury in Montana can not be easily ascertained or described from current data. Questions like "How many EMS responses involve trauma?" "What is the general fund cost of medical care to trauma patients?", and "What is the impact of a particular intervention or program?" can not be currently answered. As an example, traffic deaths have risen with the re-implementation of a "reasonable and prudent" speed limit while a correlation exists between the two events, limitations in data preclude the establishment of a direct cause and effect relationship.

Efforts are underway to further track injury death, disability and costs. The EMS and Injury Prevention Section (EMSIP) of the Montana Department of Public Health and Human Services has developed a Prehospital EMS Information Plan[13] which identifies minimum data sets to be collected in the prehospital environment as well as an epidemiologically-based subset of data that will be transmitted to the state for aggregation and analysis. To make the collection of data as easy as possible, EMSIP joined forces with CIT and, with the aid of two federal grant programs, has placed a micro computer in 103 of 121 licensed ground transporting ambulance services in the state. With the purchase and distribution of the *Medic* software program, data from prehospital events will be captured beginning in 1999. Federal grant funding has been solicited to complete an emergency department surveillance system that will directly link to both the existing prehospital and trauma register data bases. If awarded, system development will begin in 1999.

Probabilistic linkage, a process which uses special software to match records from disparate sources will provide additional information. The initial pilot project will link highway traffic safety data with medicaid and trauma register information. Subsequent efforts will incorporate injury cost information from a variety of sources.

Information concerning perceptions of Montana's citizens relative to injury prevention activities must be monitored. The level of importance that the general public places on health and safety issues will help to determine the rate and direction of certain prevention strategies. The acceptance of, and willingness to, modify risk-taking behaviors must also be monitored to ensure maximum program effectiveness.

One of the most difficult challenges to any injury prevention effort is evaluating the effectiveness of a particular strategy or intervention. How does one measure the absence of an event such as a fall in an elderly individual? The answer to that question is through continuous epidemiologic data gathering and analysis. While the avoidance of an individual injury producing incident will not be captured, an accumulation of those "non-events" over time will result in lower rates and reduced costs. Therefore, a commitment must be made to a long-term epidemiologic surveillance system, without which, the effect of injury prevention strategies will not be known.

Additionally, data are needed to improve the process and application of injury prevention in Montana. According to Theodore R. Delbridge, MD, "Continuous evaluation is essential and should pervade all aspects of every EMS system."[14] Integrating a quality improvement philosophy into Montana's injury prevention and control program will result in both programmatic effectiveness and cost reduction.

## PHILOSOPHICAL CORNERSTONES

### INJURIES ARE NOT "ACCIDENTS"

There are a number of underlying philosophies in the field of injury control and safety. The cornerstone is that **injuries are not "accidents."** For centuries injuries have been viewed by the public and policy makers as "accidents." As such, they seem unpredictable and random, are often referred to as "acts of God," "fate," or "luck of the draw," and create a sense of futility.

In fact, injury prevention has become a sophisticated endeavor with modern data-driven targeted programs that include effective intervention and evaluation components. Preventing injury requires a sustained effort and a combination of strategies including re-engineering environments and technology, effective enforcement and legislation, education, and interventions leading to behavioral and cultural change. The most effective strategies incorporate these components into a coordinated, comprehensive, constantly improving data-driven injury prevention and control program.

### THE PUBLIC HEALTH MODEL

Epidemiologists and health professionals have successfully applied a public health model to the eradication or amelioration of a variety of plagues. C. Everett Koop, during his tenure as U.S. Surgeon General, identified injury, particularly childhood injury, as "the last great plague of the 20th Century."[15] Even before this forceful declaration, public health strategists were applying public health prevention and control principles to this injury challenge. William Haddon, M.D., the inaugural administrator of the National Highway Traffic Safety Administration (NHTSA), in 1966 described the pre-event, event and post-event strategies that could be applied to the person, the injury-producing instrument and the environment to prevent or reduce the effects of injury.[16] The Haddon Matrix (Table 4) provides a visual summary of a scenario involving a senior citizen walking to the grocery store in the winter.

**Haddon Matrix for Injury Control for a Fall in Elderly Example**

| | Factors | | |
|---|---|---|---|
| Phases | Host | Agent | Environment |
| Pre-Injury | Calcium Supplement | Sidewalk construction, e.g. no obstacles | Contingencies for Grocery Delivery |
| Injury | No Osteoporosis | Snow removal and sanding | Time to Discovery |
| Post-Injury | Poor Clotting Factor | Relationship to public telephone | Emergency Medical Response |

**Table 4** Source: Haddon et.al., 1966

The broad category of injury can be better understood if it is broken down into smaller component parts. The two major divisions of injury are intentional and unintentional. Intentional injury involves homicide, suicide, assault, abuse and other violent acts. Unintentional injuries are those that have previously, and incorrectly, been thought of as "accidents." Specific causes of injury, i.e. motor vehicle crashes and falls, are identified as standardized numeric codes[17] that are used by medical professionals world-wide to more clearly define and describe the problem.

It has often been assumed that people who live in rural areas of the country, such as Montana,

participate in vocational and avocational activities that are more likely to produce injuries.[18,19] Certain occupations including agriculture, logging and mining are high-risk ways to make a living. Likewise, such rugged sports as hunting, white-water rafting, equestrian events and mountain climbing are not without some risk. However, the reality is that most of Montana's injuries are caused by events similar to our urban neighbors, including motor vehicle crashes, gunshot wounds and other more "common" incidents.

Injury prevention and control has emerged as a scientific discipline.[20] This, coupled with shrinking health care dollars, burgeoning medical costs and an increasing societal awareness of prevention issues, has brought the challenge of preventing unnecessary injury to the forefront of health care.

*In spite of our idyllic setting, Montanans are not immune to injury. In fact, our injury fatality rates are 23% higher than the national average. It is estimated that up to 90% of injuries could be prevented with the application of known approaches and technologies.*

# SPECIFIC PROBLEM AREAS

## INFRASTRUCTURE

### Background

During the reorganization of the Department of Public Health and Human Services, the Emergency Medical Services (EMS) Bureau became the EMS and Injury Prevention Section charged with the additional responsibility of statewide injury prevention coordination. While an injury prevention coordinator has been hired and program activity has begun, those efforts have been supported by federal grant programs. A permanent infrastructure, including appropriate staffing and resources, is essential to the success of the injury prevention effort in Montana.

Although injury prevention programs are occurring in Montana, a state-wide coordinated and data-driven approach has been lacking. State and local agencies as well as private organizations have not always communicated about injury prevention efforts, resulting in duplication and inefficiency. Existing data, as outlined in this plan, will be used to target program activity areas. As the program develops, the evaluation component will be data-driven. Quality improvement principles will be used to evaluate, refine and improve the effort on an ongoing basis. The injury prevention program will serve as a hub for coordinating injury prevention activities statewide.

### Goal and Objectives

*A sustainable infrastructure will be maintained within the EMS and Injury Prevention Section of the Department of Public Health and Human Services that coordinates and supports the needs of regional and local injury prevention efforts.*

- By the year 1999, the EMS and Injury Prevention Section will have developed, implemented and begun the evaluation of a comprehensive, coordinated injury prevention program that will contribute to a 5% reduction in injury fatalities.
- By the year 2000, the injury prevention program will have established an injury surveillance system that includes estimates of cost and potential cost savings of the injury prevention program.
- By the year 2001, the injury surveillance system will have documented actual and estimated costs of injury to Montana's economy and provided a plan to reduce those costs through a permanently funded injury prevention program.

### Targeted Activities

- Based initially on this plan and refined as additional data warrant, design, implement, publicize and evaluate a statewide, coordinated injury prevention program.
- Establish a comprehensive injury surveillance system through the establishment and linkage of medical data gathered from prehospital, emergency department and trauma services.
- Further expand the injury surveillance system by electronically linking disparate data sets including medicaid cost data to provide an estimate of injury costs and potential savings.
- Monitor public attitudes/practices through the Behavior Risk Factor Survey System.
- Secure permanent program funding for core program functions commensurate with the cost/benefit analysis of the above data.

## MOTOR VEHICLE INJURIES

### Background

Motor vehicle crashes are the leading cause of injury death in Montana. From 1986 to 1994 the Montana motor vehicle crash death rate per hundred thousand was 24.9 versus a national rate of 17.9.[21] In 1996, there were 198 traffic fatalities in Montana; cost of these injuries was estimated at $476 million.[3,5]

From 1990 to 1996, there were 134,333 crashes resulting in 65,671 nonfatal injuries and 1,412 fatalities in Montana. Estimated motor vehicle crash costs this period including: medical expense, wage loss, property damage costs, and insurance administration, were approximately $2.1 billion with a 50% increase from 1994 to 1996.[3] In 1996, the leading contributing factors in fatal crashes recorded by the Montana Highway Patrol were: driving under the influence of alcohol, driving too fast or carelessly for conditions, fatigue including falling asleep at the wheel, and inattentive driving.[22]

A number of agencies, notably the Highway Traffic Safety Bureau, the Highway Patrol and other law enforcement agencies have been active in attempts to reduce the toll of motor vehicle related injuries. The emphasis of this program will be to broaden the influence of these existing efforts by involving and investing a wider variety of individuals and agencies in the effort to reduce motor vehicle crashes and the injuries produced by such events.

### Goal and Objectives

*Support and assist in efforts to reduce motor vehicle crashes and/or the injury producing effects of those crashes.*

- Support a reduction of alcohol related fatal crashes to less than 30% of the total fatal crashes by the year 2000.
- Assist in the attainment of an 85% vehicle safety restraint use rate by the year 2000.
- Encourage the reduction of child occupant fatalities by 15% by the year 2000.
- Contribute to the reduction of the statewide motor vehicle crash rate of 2.1 per 100 million vehicle miles traveled by the year 2003.

### Targeted Activities

- Promote vehicle occupant injury prevention through regulatory change, including the passage of a: daytime speed limit; primary seat belt law, .08 blood alcohol limit, and local ordinances requiring the use of bicycle helmets.
- Promote vehicle occupant injury prevention through public education, awareness and technical assistance campaigns, in particular the Child Occupant Protection Program (COPP) statewide to educate and inform the public on air bag hazards, proper child safety seat use and the importance of seat belt use.

## FALL INJURIES

### Background

Falls are the leading cause of nonfatal injury resulting in emergency department visits for all ages. A study of deaths among Montana's older adults from 1990 - 1991, reported falls were the leading cause of injury, especially among adults older than 74 years.[23] Fall injuries among senior citizens often result in hip fractures, especially among women. Each year, 15 to 25% of hip fractures among women over age 65 result in excess mortality or require nursing home care.[24] In 1996, 74 Montanans died from falls, and the group aged 65 and older account for 81% of the fatal falls.[5] From 1986 to 1994, Montana averaged 57 fall deaths annually; Montana's rate per 100,000 population was 3.5 versus 2.6 nationally for this period.[21]

Osteoporosis, visual and physical impairment, poorly designed and lit stairways, improper footwear, slippery and or icy conditions, and medications and alcohol abuse are factors contributing to falls among older adults.[25]

While falls are also common in children and other age groups, the high frequency and fatal nature of falls among the elderly will target initial efforts at this age group.

### Goal and Objectives

*To implement, monitor and evaluate a fall reduction campaign in homes and other residential facilities serving older populations.*

- By the year 1999, the incidence and rate of injury producing falls in Montana for those over the age of 60 will be determined.
- By the year 1999, available programs targeting fall reduction among older persons will be reviewed and best practice strategies selected and modified as necessary.
- By the year 2003, the incidence and rate of injury producing falls in Montana for those over the age of 60 will have been reduced by at least 5%.

### Targeted Activities

- Develop a mechanism for using the Hospital Trauma Register System to track injury producing falls among adults over the age of 60 for a six month special study period. Alternately, if the emergency department surveillance system project is funded use that data base to determine the incidence and rate of falls.
- Conduct a detailed analysis of the literature and other data sources concerning the prevention of falls in the elderly.
- Gather and review program materials from known fall prevention programs in the U.S. and abroad.
- Select, modify as necessary and implement a fall prevention campaign and activities based on the best practices determined in activities 2 and 3 above.
- Re-evaluate the incidence and rate of injury producing falls among older Montanans to determine achievement of target reductions.

## INTENTIONAL INJURIES

### Background

Intentional injuries and deaths are defined as injuries that are self-inflicted or purposely inflicted upon the victim by another person. Although Montana has low homicide rates, suicide rates are among the highest in the nation. From 1986 through 1994 Montana averaged 35 homicides, and 159 suicides per year.[21] In 1996 there were 174 suicides and 37 homicides.[5]

National suicide trends are consistent; from 1986 to 1994 the rate was 11.4. During that same time period, Montana's suicide rate was 18.6 per 100,000.[21] In 1996 there were 174 suicides in Montana. Of these, 16 children from ages 10-19 completed suicide, 12 of these used a firearm to complete the fatal act. During 1996, suicide was completed most frequently by white males over the age of 25; accounting for 70.6% of the total. White males over 65 years of age accounted for 32 (18.4%) of the total.[5] The rates were statistically similar for Caucasians and Native Americans.

From 1986-1994, Montana averaged 35 homicide deaths a year with a rate of 4.5/100,000, well below national rates of 9.7.[21] In 1996 there were 37 homicides. Of these, 27 of the victims were male and 10 were female. Seventeen, or nearly 46%, were men from ages 18-49. In 1996, homicide was committed using a firearm in 19 of the cases involving males and 6 of those involving females.[5]

### Goal and Objectives

*Develop, implement and evaluate prevention strategies and programs to reduce the incidence and rates of suicide, particularly among adolescents and teens, and support programs designed to maintain the low incidence of homicide in Montana.*

- Work towards achieving the Healthy People 2000 objective of reducing suicide rates to 10.5 per 100,000 in Montana by the year 2010.
- Maintain a homicide rate of less than 5/100,000.
- Work towards a decreased utilization of firearms as the weapon involved in suicidal and homicidal events.

### Targeted Activities

- Maintain active involvement in inter-agency efforts to decrease adolescent and teen suicide and youth violence.
- Conduct a detailed analysis of the literature and other data sources concerning the prevention of suicide.
- Gather and review program materials from known suicide prevention programs in the U.S. and abroad.
- Select, modify as necessary and implement a suicide prevention campaign and activities based on the best practices determined in activities 2 and 3 above.
- Continuously monitor and evaluate the incidence and rate of suicide in Montana.
- Support and assist programs and efforts designed to maintain or reduce the rate of violence and homicide in Montana.
- Explore potential methods of decreasing the use of firearms in suicide and homicide in a manner which does not infringe on the rights of Montanans to own and use firearms for legitimate purposes.

## WATER INJURIES

### Background

Nationally, drowning has declined for the past 60 years,[19] except for infants which has seen a increase in drowning deaths in the past decade.[26] From 1986 to 1994 the national drowning rate was 1.9 per 100,000. Montana had a rate of 2.3 per 100,000 population.[21]

From 1994-1996 Montana has had an average of 15 drowning per year. During that same time period, there has been an average of 5 boating/water transport deaths per year.[5,27] National data reported a gender ratio of four males to every female in drowning deaths.[4] In Montana this distribution is similar with over 6 males for every female from 1994 - 1996.[5, 27]

Lack of personal floatation device (PFD) use was the leading factor in drowning death nationally and in Montana. Infants are at risk in bathtubs whereas toddlers are in more danger from unfenced pools, uncovered water containers (5 gallon buckets, stock tanks), and open water areas. Alcohol is a contributing factor of drowning/boating and water transport deaths, particularly in adolescents. Research indicates that 50% of adolescent drowning incidents are associated with alcohol use.

### Goal and Objectives

*Decrease drowning rates to less than 2/100,000 by the year 2000. Meet the Healthy People 2000 objective of 1.5/100,000 by 2010.*

- Promoting family-centered awareness and education concerning personal floatation device (PFD) use on and near water.
- Provide information on safe bathing and supervision principles for infants and small children.
- Promote the installation of fences and other barriers between young children's play areas and ponds, residential pools and irrigation ditches, as well as the safe storage of open water containers.
- Support the expansion and publicity of PFD loaner programs.
- Raise public awareness of the hazards of using alcohol while boating through public information and education campaigns.

### Targeted Activities

- Continue the current drowning prevention campaign and conduct a program evaluation.
- Modify and expand the existing drowning prevention program as necessary to meet program objectives.
- Use the BRFSS to gather Montana data on alcohol use while boating, PFD use while boating and childhood PFD use.

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## APPENDIX 1
## Injury Prevention Contacts and Resources

The following is a listing of injury prevention and control contacts. This list is by no means exhaustive. The purpose of this appendix is not to reference all programs but to list a core of injury prevention resources nationally, regionally, and in Montana who have information, resources, data and experience that may be helpful in the design, implementation and evaluation of injury prevention and control efforts.

### General Injury Prevention and Control

**Thom Danenhower**
**State Injury Prevention and Control Program Coordinator**
**EMS and Injury Prevention Section**
**Health Policy and Services Division**
**P.O. Box 202951**
**Helena, MT 59620-2951**
**406 444-4126**

Contact for all information and education concerning injury prevention for national, regional, and state program resources, RTAC information, data reports and information requests, grant information, and research projects. Mr. Danenhower can also make referrals within the EMS and Injury Prevention Section to appropriate personnel for questions concerning the Trauma Register, the statewide trauma system, and other aspects of EMS, trauma care and injury prevention and control.

**Teri L. Sanddal**
**Critical Illness and Trauma Foundation, Inc.**
**300 N. Willson Avenue, Suite 3002**
**Bozeman, MT 59715**
**406 585-2659**

Contact for injury prevention data and intervention information. The Critical Illness and Trauma Foundation has done many research projects concerning injury prevention in Montana, and is also involved with developing injury prevention education programs, the TENKIDS project, and many other activities.

**Greg Oliver and Lonie Hutchison**
**Missoula City-County Health Department**
**301 W. Alder**
**Missoula, MT 59802**
**406 523-4775 Ext. 3297**

Contact for local program activities and coalition ideas; with an emphasis on traffic safety.

**John Sery**
**USPHS Indian Health Service**
**2900 4th Avenue N., Suite 307**
**P.O. Box 2143**
**Billings, MT 59103**
**406 247-7097**

Contact for injury prevention activities and program support information on Montana's seven Indian Reservations.

**Judy Garrity**
**Inter-Agency Coordinating Counsel**
**Montana Department of Health and Human Services**
**111 Sanders**
**P.O. Box 4210**
**Helena, MT 59604**
**406 444-5986**

Contact for information on VISTA Program volunteers and setting up community coalitions. Ms. Garrity has program information related to substance abuse and general state agency efforts to coordinate school-based programs to intervene on high risk and delinquent behaviors.

## The Regional Trauma Care Advisory Committee (RTAC)
## Injury Prevention Subcommittees

**Western RTAC:**
**Cindy Jimmerson, RN**
**St. Patrick Hospital**
**500 W. Broadway**
**Missoula, Montana 59802**
**406 329-5603**

**Central RTAC:**
**Elena Guevara, RN**
**P.O. Box 1231**
**Havre, Montana 59501**
**406 265-2211**

Due to the elected nature of these positions, they will change from time to time. If you have difficulty reaching the listed contact in your region, please call Thom Danenhower at 406 444-4126

**Eastern RTAC:**
**Elaine Olson, RN**
**Frances Mahon Deaconess Hospital**
**621 3rd Street South**
**Glasgow, MT 59230**
**406 228-4351 or 800 322-3634**

## Motor Vehicle Occupant Safety

**Priscilla Sinclair**
**Traffic Safety Bureau**
**Montana Department of Transportation**
**P.O. Box 201001**
**Helena, MT 59620-1001**
**406 444-7417**

Contact for car seat, airbag, and DUI resources and programs including information on county DUI task forces; this bureau also works with Office of Public Instruction to fund alcohol abuse prevention and seat belt use programs in the high schools. This office is the link to the National Highway Traffic Safety Administration and NHTSA materials.

For overall traffic safety information contact Albert Goke, Chief, HTSB 406 444-7301. For traffic crash and injury data, contact Jack Williams, HTSB, 406 444-3298.

**Major Bert Obert**
**Highway Patrol Division**
**Montana Department of Justice**
**2550 Prospect Ave.**
**Helena, MT 59620-1419**
406 444-3916

Contact for Highway Patrol safety program information.

**Diane Stanley**
**Yellowstone County Traffic Safety Coordinator**
**2205 Nina Clare Rd.**
**Billings, MT 59102**
**406 256-2724**

Contact for DUI task force information and traffic safety program information in Yellowstone County.

## Violence Prevention and Firearm Injury Prevention

**Tim Pool, Hunter Safety Coordinator**
**Montana Department of Fish, Wildlife and Parks**
**1420 E. Sixth Ave.**
**P.O. Box 200701**
**Helena, MT 59620-0701**
**406 444-4046**

Contact for information on firearm and bow hunter safety classes and preventing unintentional firearm injury. Mr. Pool has information on safe firearm storage.

**Wendy Sturn**
**Grants Planning Bureau**
**Montana Department of Justice**
**303 N. Roberts**
**P.O. Box 201408**
**Helena, MT 59620-1408**
**406 444-1995**

Contact for information on domestic violence intervention.

**Susan M. Werner, RN, President**
**Montana Emergency Nurses Association**
**c/o MT EMS Section & Injury Prevention**
**P.O. Box 200901**
**1400 Broadway, Cogswell Building**
**Helena, MT 59620-0901**
**406 444-4459**

Contact for the national Emergency Nurses Association's firearm trigger lock program. Ms. Werner is the contact for distributing trigger locks to interested agencies across the state.

## Drowning Prevention

**Elizabeth Roeth-Espelin**
**Healthy Mothers-Healthy Babies: The Montana Coalition**
**P.O. Box 876**
**Helena, MT 59601**
**406 449-8611**

Contact for open water drowning prevention. Free information packets concerning drowning and oriented to all age groups are available by calling 800 421-6667.

**Liz Lodman**
**Montana Department of Fish, Wildlife & Parks**
**1420 6th Avenue**
**P.O. Box 200701**
**Helena, MT 59620-0701**
**406 444-2615**

Contact for information on FW&P's boating and water safety programs and personal floatation device loaner programs.

## APPENDIX 2
## Abbreviations

**Abbreviations** **Definition**

BRFSS - Behavior Risk Factor Surveillance System

CDC - Centers for Disease Control and Prevention

CIT - Critical Illness and Trauma Foundation, Inc.

COPP - Child Occupant Protection Program

DPHHS - Montana Department of Health and Human Services

DUI - Driving under the influence of alcohol or drugs

EMS - Emergency Medical Services

EMSC - Emergency Medical Services for Children federal grant program

EMSIP - Montana Emergency Medical Service and Injury Prevention Section, MT DPHHS

HTSB - Montana Department of Transportation, Highway Traffic Safety Bureau

ICU - Intensive Care Unit

IHS - Indian Health Service

NHTSA - National Highway Traffic Safety Administration

PFD - Personal Floatation Device

QI - Quality Improvement

RTAC - Regional Trauma Advisory Committee

STR - EMSIP System Trauma Register

**MEMBERS, CONSULTANTS AND STAFF OF THE INJURY PREVENTION AND CONTROL COMMITTEE INCLUDED:**

| Chairperson<br>Terry J. Mullins<br>Great Falls Emergency Services<br>Great Falls, MT | |
|---|---|
| John Britt, RN, MPH, Past Community Ordinator<br>Haborview Injury Prevention Research Center<br>Seattle, WA | Herbert Garrison, MD, MPH<br>East Carolina Injury Prevention Program<br>Greenville, NC |
| Albert E. Goke, Chief<br>Montana Traffic Safety Bureau<br>Helena, MT | Michael Spence, MD<br>Montana DPHHS<br>Helena, MT |
| Brian King, Past Director<br>Blackfeet Health and Safety Corps<br>Browning, MT | Pat Brown, RN<br>Montana Maternal and Child Health Services<br>Helena, MT |
| Audrey Paulsen<br>Board of Crime Control<br>Helena MT | D. Elizabeth Roeth-Espelin, RNC, MBA<br>Healthy Mothers, Health Babies<br>Helena, MT |
| Nels D. Sanddal, MS, REMT-B<br>Critical Illness and Trauma Foundation, Inc.,<br>Bozeman, MT | John G. Sery, RS, MPH<br>IHS Environmental Health Services Branch<br>Billings, MT |
| Priscilla Sinclair<br>Montana Highway Traffic Safety Bureau<br>Helena, MT | Thom Danenhower, I.P. Coordinator<br>EMS and Injury Prevention Section<br>Helena, MT |
| Drew Dawson, Supervisor<br>EMS and Injury Prevention Section<br>Helena, MT | Terry Krantz, Supervisor<br>WIC Program<br>Helena, MT |

## A WORD OF THANKS

The TENKIDS injury prevention subcommittee gratefully acknowledges the Maternal and Child Health Bureau and the Office of Rural Health Policy of the U.S. Department of Health and Human Services for the opportunity that the grants awarded by those agencies afforded in the development of this plan. Any lives that may eventually be saved or any suffering that will be reduced are as much a reflection of the foresight of those funding agencies as our work and commitment.

## Acknowledgments

Many agencies, organizations and individuals have contributed to the completion of Montana's first comprehensive injury prevention and control plan. It would be impossible to acknowledge the contributions of each of these groups and individuals. However, a few key contributors must be recognized for their erstwhile efforts and support.

United States Department of Health and Human Services
Maternal and Child Health
Emergency Medical Services for Children Grant # MCH-304001-03-0

Awarded to: Montana Department of Public Health and Human Services — Emergency Medical Services and Injury Prevention Section
Drew E. Dawson, Project Director

This grant was awarded based upon the proposition that preventing childhood injuries is more effective than treating them after the fact. The establishment of the prehospital information and data collection computer network and the emphasis on injury prevention and control afforded by this EMS-C grant have accelerated Montana's capacity to address the injury prevention and control challenge.

United States Department of Health and Human Services
Office of Rural Health Policy
Rural Health Outreach Grant # CSD 0000289-03-0

Awarded to: Critical Illness and Trauma Foundation, Inc.
Nels D. Sanddal, Project Director

Funding from this grant allowed for the completion of the prehospital information and data collection computer network that will be extremely valuable in the ongoing monitoring and direction of the injury prevention and control campaign. It also provided the opportunity for broader input and collaboration.

TENKIDS Injury Prevention and Control Committee

The marriage of the two grant programs listed above became known as TENKIDS, a combination of the names of the EMS-C project and the ORHP network. As part of the broad-reaching collaboration that resulted from the TENKIDS project, the Injury Prevention and Control Committee was formed to oversee the development of this document.